REMARKS

Claims 2, 5 and 20 were cancelled. New claims 21 – 24 were added. Therefore, claims 1, 3, 4, 6 - 19 and 21 – 24 remain pending in the present application. Claims 4, 6, 8, 10, 14 – 18 were withdrawn from consideration. The rejections set forth in the Office Action are respectfully traversed below.

The Title

The Office Acton required a new title. The title has been amended to read "Holographic Optical Element Having A Divided Diffraction Surface And An Optical Pickup Apparatus Having A Divided Diffraction Element."

The Specification

The Office Action objected to a minor, apparent typographical error on page 12, line 17, which should refer to Figure 23, instead of Figure 24. The specification has been amended accordingly.

Allowable Subject Matter

Claim 9 was merely objected to as being dependent upon rejected base claim, but is otherwise allowable. Claim 9 was rewritten into independent form, including the features of its base claims 1, 2, and 3. Therefore, claim 9 is in condition for allowance.

Rejections under 35 USC § 103

Claims 1-3, 5, 7, 11, 13 and 19-20 were rejected under 35 USC § 103 over the applicants' admitted prior art (**AAPA**), in view of **Nagahama et al.** (USP Re. 35, 332).

The Office Action basically relied upon the admitted prior art discussed with regard to Figs. 23-25 of the present application, disclosing a holographic optical unit 508 with diffraction grating 509 and the holographic surface 510. According to the Office Action, the **AAPA** discloses all the basic elements recited in the claims, except for dividing the diffraction element in the specific manner claimed. As stated in the Office Action, the "**AAPA** does not specifically disclose well known details of different regions that a diffraction element could have as different sections or how they are arranged." Therefore, the further reference to **Nagahama** was made for the basic concept of dividing a diffraction grating.

However, the Office Action also stated that "**Nagahama** does not disclose details of divisions exactly as claimed." In particular, "**Nagahama** does not specifically disclose that first and second dividing lines intersecting each other as first and second regions, and third, fourth, fifth, and sixth regions obtained by equally dividing the remaining two regions in second diagonal positions by a third dividing line."

Despite these deficiencies of **Nagahama**, the Office Action still alleged that the specifically claimed divisions are obvious. The apparent reasoning according to the Office Action is that dividing the diffraction grating specifically as claimed would be obvious in view of teachings of **Nagahama** "***in absence of criticality***." In other words, the Office Action appears to allege that the specific claimed divisions of the diffraction grating are ***not critical***.

However, an explanation of the criticality of the optical characteristics achieved by dividing the diffraction grating as claimed in the present invention is set forth below. These explanations demonstrate how such features constitute a ***critical*** distinction over the general notion of merely dividing a diffraction grating. In view of the following discussion of the ***criticality*** for the present claimed division of the diffraction element, it is submitted that the present claimed invention is not obvious over the cited prior art. For at least these reasons, the rejections under 35 USC § 103 should be withdrawn.

Criticality of the Claimed Divisions of the Diffraction Grating

A focus error detection system using a holographic optical element includes, for example, the astigmatism method, Foucault method, and spot size detection method, which are well-known. **Nagahama** relates to the Foucault method, while the present invention is based on the astigmatism method. Also, as pointed out by the Office Action, a general concept that the above holographic element is divided for some purposes is also well-known. However, there is no textbook disclosure that specifically details how certain features are to be attained or the specific manner for dividing, for every purpose. Each solution must be independently discovered by each technical expert's own thinking.

One primary object of the present invention is to obtain a stable focus error signal with respect to a variation in the wavelength of a light source on the premise of using the astigmatism method, while the present invention is also designed to be able to obtain a more accurate focus error signal and allow for the differential push-pull method as a tracking error detection system.

The present invention is achieved, not by some analogy which is obvious over prior art, but rather, by a completely new idea which has not conventionally existed – i.e., that "among spots on a photodetector for a light beam with astigmatism, those spots which also move while being deformed at the time the optical disk is shifted from the focal point are separated from others which are only deformed without moving."

Specifically, as shown in Fig. 5 and mentioned in its corresponding description, the spot Sa is deformed to move to either the divided part A or B of the photodetector depending on the direction of the shift of the optical disk from the focal point. The spot Sd moves oppositely to the spot Sa. The spots Sb, So, Se and Sf are only deformed with their positions unchanged. This separation results in the stable focus error signal with respect to the movement of the spots along the dividing line LX due to the wavelength variation as well as the accurate focus error signal and the positional relation among the spots Sb, Sc, Se and Sf enables stable push-pull signal detection. Note that the relation between the respective spots and divided parts of the holographic optical element forming those spots is mentioned in the description.

The first embodiment shows a case of the above-described basic operation, and the second embodiment shows an example that the focus error signal attains a large value at the slight expense of the accuracy of push-pull signal detection. The third embodiment shows an example that the focus error signal is allowed to attain a large value by concentrating the light intensity distribution of the light source beam on spots contributing to focus error detection.

Thus, the present invention is not an obvious variation over prior art, but rather, was achieved based on the new idea that the spots on the photodetector have plural types of behaviors, the state-of-the-art simulation technique for substantiating the new idea, and trial experiments for

verifying that technique. Therefore, the present claimed invention, as amended above, has criticality and is not obvious over the prior art. For at least these reasons, the rejections under 35 USC § 103 should be withdrawn.

If, for any reason, it is felt that this application is not now in condition for allowance, or if the Examiner wishes additional explanations of the present invention, the Examiner is requested to contact Applicant's undersigned attorney at the telephone number indicated below to arrange for an interview to expedite the disposition of this case.

In the event that any fees are due in connection with the filing of this paper, please charge any fees to Deposit Account No. 50-2866.

Respectfully submitted,

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